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THE FOUNDRY

A TRADE JOURNAL DEVOTED TO THE INTERESTS OF THE WHOLE FOUNDRY BUSINESS.

Vol. I. DETROIT, MICH., OCTOBER, 1892. No. 2.

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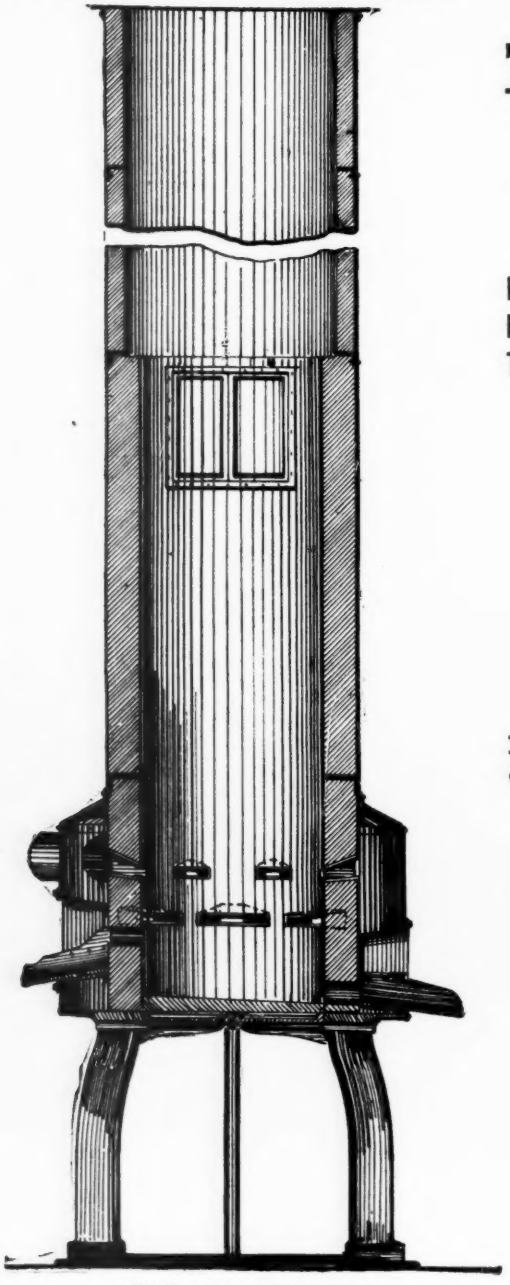

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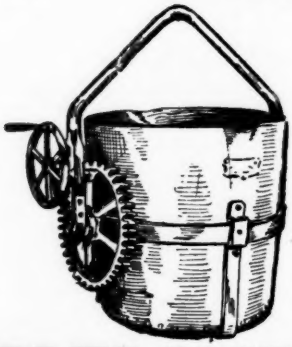

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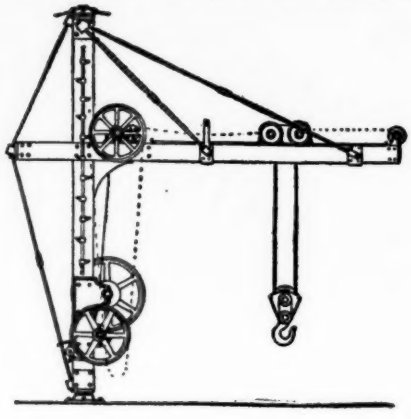

THE FOUNDRY

VOL. 1. • DETROIT, MICH., OCTOBER, 1892. No. 2.

FOUNDING AND METALLURGY

As Practiced in the Early Part of the Last Century.

Translated from Reaumur for THE FOUNDRY by N. DANTERVILLE.

It might be well before starting to illustrate the workings and achievements of the eighteenth centurians in the metallurgical field, as outlined by Reaumur's writings, to say a few words upon the character of this eminent author and his writings as judged from his works, the first of which was published in 1722, and the second in 1762. His first work is a book 3 inches in thickness and 12 x 16 inches; the second 3 x 9 x 11 inches. It surpasses mechanical writings of to-day in its minute descriptions of all details, and far excels in their profusion of illustrations and drawings. To give an idea of the latter, we would say that did this author desire to convey to the mind of his readers such a simple design as that of a square block, the reader would find it illustrated and designated by a figure and number. In no mechanical writings can there be found more and closer attention paid to detail description in the writings as well as in the illustrations or drawing shown, and at this day would be an example to be appreciated by most all readers, if practiced more by the mechanical writers of to-day. In reading his works, one is imbued with a feeling of amazement and respect for the enthusiasm and energy displayed in his writings and labor in the laboratory. It is evident that his love for France was the main cause of his strenuous efforts in the metallurgical field, for we find his first labors being that to discover the secrets possessed by England and Germany to manufacture steel and improve on same in order that France would not be compelled to pay exorbitant prices to these countries for their steel, and as this line was the first to attract his attention, we will now follow him in his researches and experiments in steel workings, which, taken from his writings, cannot but be interesting and instructive in showing to us the failures and successes of different experiments and the progress made in the art of metallurgy and the methods used in those days for manipulating the founding of metals. As stated above, we will first give his notes on steel, and then later turn to the subject of iron founding, and to give a correct idea of Reaumur's style of writing, we will give his writings for this first paper as they appear in his works, and which are as follows:

First Paper.

THE ART OF CONVERTING WROUGHT IRON INTO STEEL.

Wherein, after giving a general idea of the different manners of making steel, we examine what are the proper materials to convert forged iron to steel, and what mixture we should make of these materials to change the iron to the finest and best steel.

Iron ores are composed of ferruginous parts, of earthy parts, of sulphureous parts, and of saline parts. We will prove this elsewhere. We assume the right to suppose it for the present. Art has found the means of separating the metallic or ferruginous parts from the foreign materials with which they are mixed, of re-uniting the dispersed parts, of making of them a substance which it then renders fit for so many different uses.

Melted ores form two fluids of different densities. The one which is composed of the metallic parts takes the lower place; the one

which is composed of foreign matters takes the upper place, and is but a sort of glass. In the greater number of many furnaces where iron ores are melted, when a certain quantity of ores have been melted, the metallic fluid is allowed to run and is ordinarily conducted into rude molds, where it takes the form of a long prism, with a triangular base, weighing sometimes as much as two thousand weight; this is called a pig of iron. This liquid can be made to assume any other form; mantlepieces, kettles, etc., are but the iron made from this first fusion. It is an impure iron which is not yet sufficiently separated from the foreign materials with which it was mixed in the ore; in this state it is called cast-iron or simply casting; it is much more hard and brittle than wrought or forged iron. It could not stand the hammer, either hot or cold.

To render cast, or melted, iron a forgeable iron, it is refined; that is to say, it is melted a second time; it is then placed under a heavy hammer weighing at least a thousand weight and moved by water; it receives the terrible blows; it is then removed to be re-heated until nearly melting, and is again placed under the hammer, and all this is repeated many times, until brittle matter, by reason of having been heated and hammered, is changed to forgeable bars. Among the bars come from the same casting, some may be iron and others steel, if different processes to refine different portions of the same casting have been followed. We do not propose to explain here in what these processes differ; we will do so at length in the History of the Arts; at present we simply wish to give a general idea of the different ways in which steel is made; they may be reduced to three.

The first and the most common is to make steel with the pig castings, or of the casting which, like that of the pigs, has run out of the furnace. Steel is made with this sort of casting in many provinces of the kingdom—France—in Champagne, Livernois, Franche Comte, Dauphine, Limousin, Perigord, Normandie, etc. Often it is a rude coarse steel and is called in some places steel of the earth, because it is hardly fit but for tools to work the ground. When, however, this casting is worked with certain precautions, fine steel is the result. At Rives and at Vienne in Dauphine, very passable steel is thus made, suitable for many of the works of cutlery. Sufficiently fine steel is also made of the castings of Limousin. In foreign countries there are places where they are attentive to refine the castings to some purpose, and where they succeed in making good steel.

The second way of making steel is also to make it of casting, but of casting which has never run out of the furnace. There is no steel which owes less to art or science; if there are ores that can be called ores of steel, they are those which furnish this steel, because by processes which are precisely the same, there is drawn out iron and steel; a certain portion of the casting made of the ores is iron, and another portion is steel. In the environments of Foderberg in Styria, there are many furnaces where this sort of ores is melted. They even leave the casting to congeal in the furnaces without having let it run. The kingdom—France—furnishes us also examples of this way of making steel, but in furnaces much smaller than those of Germany. It is in Rousillon and particularly in the province of Foix, where these ores which are not allowed to run are found. After having melted the ore, they reduce the product, that of it which is come to a state of literal consistency; it forms a mass which molds itself on the bottom of the furnace; the form is that of a species of cake, or of a flattened ball, it is called "masset." When this "masset" or mass is taken from the furnace, it is cut into five or six parts, following lines parallel to one of its great diameters; each of these parts is heated and forged until formed into bars. A part of each bar is found to be steel and the rest iron, which is singular and for which we will find in the following a reason sufficiently probable: it is, that the part of each bar which is steel comes principally from the casting which was at the edge or near the edge of the mass; the balance is iron; also the steel which is made from these castings is but one-fifth or one-quarter of that which is iron. These steels which the mines of the kingdom give us almost naturally, are coarse, rude; perhaps it is much our fault as that of the ores; those which are made of the ores from near Foderberg are fine.

These two general ways of making steel, either with castings which have run out of the furnaces, or with castings which have not run, could be subdivided in a number of particular

ways, if we reported all the different practices of the workmen of different countries.

Finally, the third way of making steel is to convert to steel the bars of wrought iron, of iron such as is used in our ordinary usages. The steel made of forged iron is fine steel, and we are to some extent able to render it fine and hard to the degree that we wish; we can always prevent there being left in it a vein or grain of iron. It is not thus with that which is made immediately from the casting. Our workmen know but too well that it is usual to find the steel which they receive from Germany furrowed with iron; it is sold to them in barrels; this fault is the cause that a great part of the steel of each barrel bought is a total loss to them. We will not stop to place a value on the steel of forged iron, to place it above the others, to compare the qualities of the different steel; it is not time yet; it suffices to know that in a number of countries all the fine steel that is used is made of forged iron. England uses no other in the best works; they make this sort of steel there, although they are obliged to import from Sweden the iron which is suitable. In Italy and in divers Cantons of Germany they make in the same way steel from forged iron. In fine, if there are many countries where they do not convert iron into steel, there are few where they have not attempted to do so, and this apparently because the steel made of forged iron has always been considered as the best, and as those of the quality and of the firmness of which it is the most easy to assure ourselves.

The kingdom (France), which has common steel to sell, is wanting in these—this kind; it costs it every year considerable sums to furnish itself with fine steel; also is it nothing that there have been attempts made many times to establish manufactures to convert our iron to steel; it is an art that is preserved mysteriously in the countries where it is practiced.

The Court has however been overwhelmed, and above all since three or four years, by Frenchmen and by strangers of all countries, who in the hope of making a fortune, have presented themselves as having the veritable secret of converting iron to steel. But as we have not seen any fruits of their labors, and of the favors which have been accorded to many, we have almost come to regard as searchers of the philosopher's stone those who promise to change the iron of the kingdom to excellent steel. The public hold as impossible that which has been attempted fruitlessly many times; it does not wish or cannot be made to examine that which has miscarried in every attempt.

In spite of the established prejudice against the conversion of our iron to steel, it seemed to me that it was too important for us not to search at least once in earnest to know to what we must hold ourselves. I saw, moreover, with regret, that the kingdom (France), although more rich perhaps than any other country of the world in ores of iron, employs each year so great an amount of steel, and tools of steel, which it imports from foreign countries.

The possibility of the conversion of iron to steel did not need to be proved; it was demonstrated by the success with which it is worked in England, in Germany, in Italy, etc. All the question then was to know if with the secret practiced in foreign countries, we could of our iron make steel which would equal those which they made of their iron; or after all, our last resource should be to work in France to convert to steel iron from foreign countries, as it is done in England, where they make excellent steel with iron from Sweden, which at Paris costs us, in certain times, little more than the iron of the kingdom (France), and which in our ports is sometimes as cheap as that which comes from our mines. But the examination that I had made of the iron of the kingdom (France), and which I had had opportunity to make thoroughly at the time when I described our different furnaces and forges of iron, and all the arts that use this metal, this examination, I say, had made known to me that we have iron of so many different qualities that it seemed to me, beyond doubt, that we have some suitable to make excellent steel, whatever qualities steel may demand.

I knew also there had been at Bearn one or two factories where a person of wealth had had iron of that province converted to steel that I found to be good, although a little inferior to that of Germany.

I then supposed, and I think rightly supposed, the iron suitable to be converted to steel already formed, that it was only necessary to have the proper processes to convert it and then to prove them on all our species of iron. But

these processes are a secret, guarded as such by those who practice them. The secret books do not fail to give this secret among others. If one searches, one even finds many from which to choose, all proved and sure for those who do not attempt them. The number of these pretended secrets, quoted by different authors, is so great that though the veritable secret was among them, it would be as quick a task to search for it anew as to undertake to disentangle it from the false secrets among which it is confounded.

That which helped me more in this search than books, is a reflection that I made on the processes much in use among the workmen who have need to give a great hardness to works of iron. Those who make the large files employ only iron; they render them, nevertheless, as hard as files of steel. The arquebusiers in the same way render just as hard many pieces of gun, composed of pure iron, and this by means of prepared baths (trempe en paquet)*, that is to say (as we will explain elsewhere more at length), after that these workmen have given to their pieces of iron a convenient form, they enclose them in boxes of sheet iron with a mixture of different drugs; they plaster these boxes with earth and then place them in a furnace where they receive a fire more or less long according to the size of the pieces enclosed. After withdrawing these pieces from the fire they dip them all red in cold water, they become as hard as steel.

To be continued.

—o—

The model foundry, machine and boiler plant which Fraser & Chalmers, Ltd., are now equipping at Chicago will be traversed by Ridgway balance steam-hydraulic cranes, manufactured by Craig, Ridgway & Co., of Coatesville, Pa. There will be six of them in the foundry, two in the yard for handling flasks, etc., and others in the shops. The company have a perfect electrical installation for driving the traveling cranes, and their plant, when completed, will embody the latest improved machinery and practice. Craig, Ridgeway & Son, of Coatesville, Pa., are now building the cranes.

*Paquet (used with trempe) is a box of sheet iron coated with earth, in which steel is enclosed and surrounded with certain matters and heated. The steel in this box is withdrawn when heated.

PLENTY MORE LIKE HIM.

To the Editor:

I received your sample copy and am much pleased with it. Have always thought foundrymen were neglected, but am glad we are at last appreciated and shall in the future have a chance to at least try and improve ourselves by interchange of opinions and experiences in a paper exclusively in the interest of the foundry business. Enclosed you will find my subscription for one year, and I will try and get you more. Hoping you will meet with the success you deserve, I remain, yours truly,

THOMAS CLARKSON.

PORTLAND, CONN., Sept. 19, 1892.

—o—

WILL MANUFACTURE SEMI-STEEL.

The South Chicago Foundry Co. have recently put upon the market "semi-steel" which, in a neat little circular just issued, they call a "mixture with more than double the strength of best gray iron." Semi-steel has a tensile strength of over 36,000 pounds to the square inch, a breaking strength of from 3450 to 3850 in a Riehle testing machine, one inch square bar, and a resistance to deflection corresponding in every way to its increased toughness when compared with best iron castings. It is sound, homogeneous and remarkably free from blow holes. While not a substitute for malleable iron, it is now in general use as a substitute for steel castings in all kinds of gears, crank shafts, rocker arms, cross heads, etc. Being of very fine texture and anti-acid in its properties, it is advantageously used in such work as smelting kettles, acid pans, etc. It can be chilled to any depth desired, from $\frac{1}{8}$ of an inch up, without impairing its strength, the chill being in hardness in proportion to its strength, while the opposite side is soft tough, and can be easily machined. The works of the company are at South Chicago, and the main office Room 320, The Rookery. Mr. Geo. S. Dole is secretary and treasurer, and Mr. Gordon M'Dowell manager.

—o—

It is often very desirable to fix the limits of a crack in metal. In such a case, moisten the cracked surface with coal oil, wipe it dry and rub the surface with chalk. The oil that has gone into the crack will immediately exude and will show itself on the cracked surface. The chalk will be discolored the entire distance of the crack, although no flaw may be discernible to the eye.

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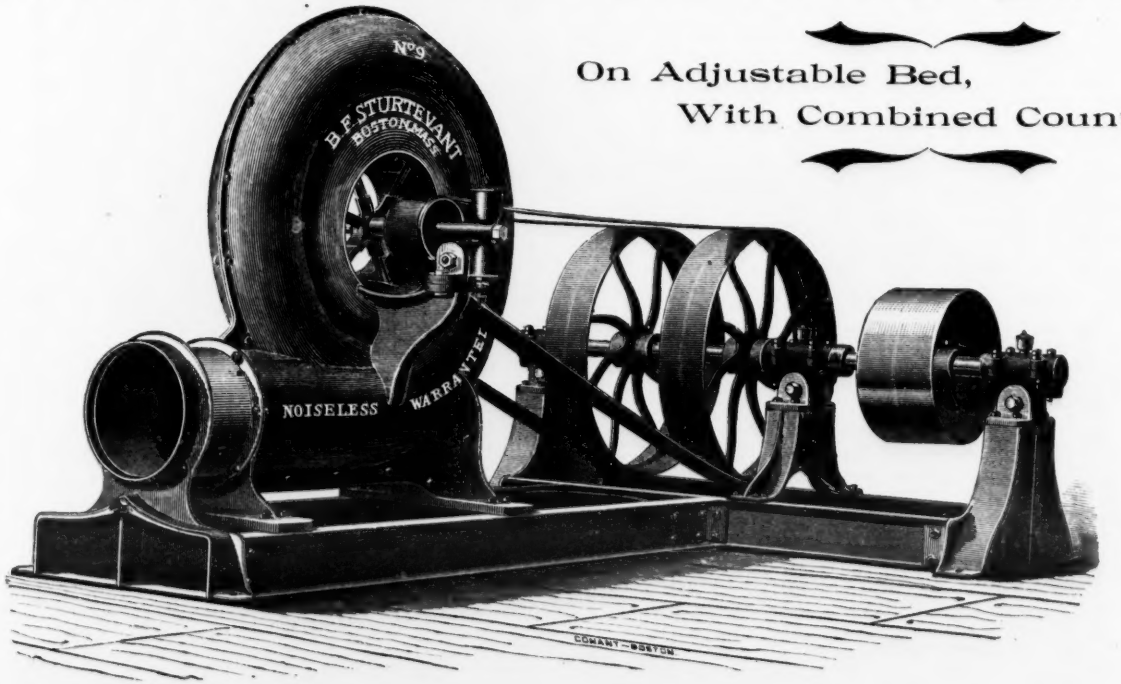

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We are Appreciated.

"Vol. 1, No. 1," of THE FOUNDRY, a new monthly trade journal published by the Foundry Publishing Company, 172 Griswold Street, Detroit, Mich., has made its appearance. It comprises thirty-two pages, 9¾x6¾ inches in size, and is devoted to the foundry interests generally and not to any special branch of the trade. The first number promises well. It is made up of interesting news matter and practical articles on foundry practice, which indicate that its management thoroughly understands the literary needs of its large constituency. The position of the paper is thus laid down in its editorial columns: "THE FOUNDRY will stand squarely for what in its opinion are the best interests of the whole business. No section thereof will be overlooked, and the importance of none unduly magnified." We bid THE FOUNDRY a cordial welcome to the journalistic ranks. The secretary and treasurer of the company which publishes the paper is John A. Penton, well known to the molding trades from his connection (lately severed) with the *Machinery Molders' Journal.—American Artisan, Tinner and House Furnisher.*

Personal Mention.

Mr. George Manning succeeds Mr. Reid as foreman molder at Messrs. John Bertram & Sons, Dundas, Ont.

Mr. Allan Parks has severed his connection with The Walker Mfg. Co., Cleveland, O., where he was foreman of their No. 2 foundry.

W. Cralley has severed his connection with Whittmore & Cralley's foundry, Bay City, Mich., and Mr. Brown, of Muskegon, is now in charge.

C. E. Larson has resigned his position as foreman in the Haigh-Kurtz steel foundry, Anderson, Ind. Wm. Chambers has taken his place. The foundry is being lengthened 60 feet.

Mr. Thomas Reid, who was for twenty-five years with Messrs. John Bertram & Sons, Dundas, Ont., is now managing director and traveling salesman for The Hamilton Facing Mill Co., Ltd., Hamilton, Ont.

Geo. Clark, a prosperous foundry man in Kalamazoo, Mich., paid this city a visit a couple of weeks ago. He worked at the trade in Detroit for many years, and took a prominent part in anything that pertained to the welfare of his fellow workmen.

EARLY DAYS OF STEEL FOUNDING.

BY JOHN PETTIGREW.

Second Paper.

In the first article I sent you I tried to tell you the trouble we had in our early attempts to make molds for steel castings, and the trouble we had in finding a suitable material to stand against the intense heat at which steel has to be poured, but after we had got fairly into the business, although in a small way, we found a great many other difficulties to contend against, not the least among which was the excessive shrinkage to which steel is subject, for, unlike cast iron, steel shrinks about as much again, and does all its shrinking while in a very soft state, in consequence of which it will pull apart or develope cracks in the casting which, after all your care in molding, makes you wish you were any other thing than a molder.

Of course the patterns used were the same make as for cast iron, but the unequal thickness there is in most all castings, either to make them look proportionate, or save metal, is the bane of the steel founder. Some time after starting it was thought that if we could succeed in making some small car wheels in steel it would save a good deal in time and repairs. We accordingly tried these with the patterns we had been using in cast iron, but we found they would crack about half around the hub and run out in parallel lines to near the rim, and if the steel should be very hard they would fall in two. These were solid webbed wheels about 18 inches diameter. We had tried to cool them in various ways, but never succeeded in making them stand the work required of them. If the pattern had been remodelled, and the metal better distributed throughout the whole wheel, no doubt but they would have been a success.

About the same time there was in use at the blast furnace, on the coke and iron barrows, a wheel that was very uniform in make. It was about 3 feet 6 inches in diameter, with eight spokes 2 inches wide and 1 inch thick, the hub being fairly proportioned. We used to have some of the arms in this crack, but evidently from a different cause. The mold was stronger than the metal. To overcome this we dug out all the sand between the spokes, leaving only an inch or so around the molds. After the molds were thoroughly dried, and before closing, we filled the holes dug with dry sifted common floor sand. We found that this was support enough for the walls of the mold to resist the pressure of the metal when pouring, and yet was loose enough to let the metal shrink without tearing apart.

This was well enough where the arms were all in the drag, but when we got gears with a 6 or 8 face, with the parting for the arms down in the center of the wheel, and the cope had to be lifted out with gaggers, there could be no provision of this kind made, as the gaggers would hold the sand in position without giving.

There were several schemes tried with this style of pattern, but we have only found one method that will relieve the strain that exists in these wheels when cold—that is to split the hub between every two arms and have the hubs well hooped before boring out.

We have made lots of gears that apparently would stand good enough by finning, *i. e.*, cutting a good fin all around the arms from 1 to 3 inches wide, cutting this off before leaving the foundry, but we have seen these "go off" with a report like a cannon and cause a loss of time when it could be least afforded. The strain being in the casting, it only took certain conditions to relieve it, when the wheel would go in some part, generally in the arm.

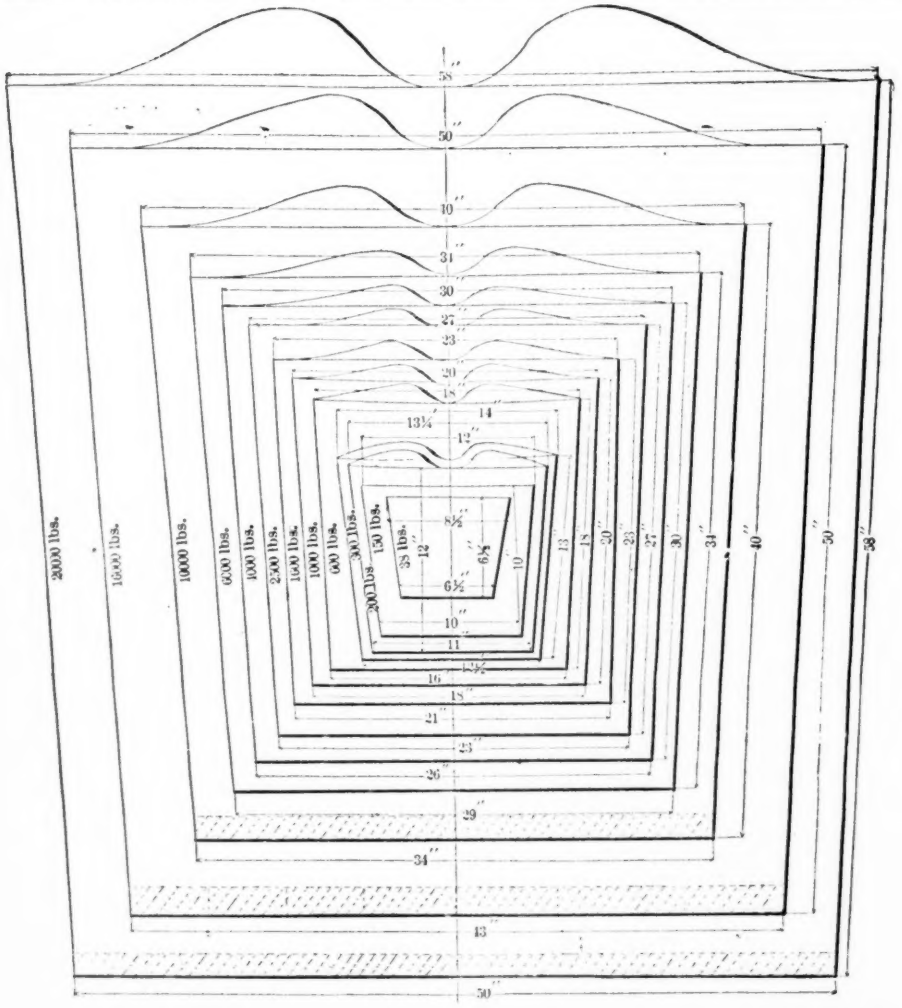
I give you these few examples to show what the steel founder has to contend against, and, although these conditions are getting to be better understood, the losses and difficulties they have to stand in trying to furnish a perfect article would discourage many a man who thinks he is supplied with lots of grit.

JOLIET.

—o—

A new cupola, the only one of the kind in the city, and a most modern invention, is being constructed at the Fisher foundry, and will be in operation next week. The firm will then make better iron than it has ever made before, and will continue to furnish the Ohio Valley and Star brands of stoves.—*Wheeling Intelligencer.*

The ambitious molder who aspires to become a thorough master of his trade in the higher branches should combine with his shopmates in forming a club of subscribers at the earliest moment.



FOUNDRY LADLES.

Proportions and Sizes for Ladles from Thirty-Eight to Twenty Thousand Pounds.

After duly considering the want of something as a standard for foundry ladles, the writer offers the accompanying table of dimensions, and the forms given in Fig. 5, as standard sizes and forms of ladles. From this table and the nest of ladles shown in Fig. 5 can be selected a suitable size of ladle for a capacity from 38 pounds to 20,000 pouuds, and it is believed that this wide range of capacity contains all different-sized ladles which may be needed, in the average foundry at least. The weights and capacities here given are for lined up ladles; of course the capacity will depend upon the thickness of the lining, but when ladles are lined up as they should be the capacities here given can be accepted as reliable and correct.

The following table gives dimensions in inches:

Capacity in lbs.	Between Handles A	Length & size of handles. B	Length & size of shank. C	Width & thickness of bail. D	Diam. of shell. E
150	20	12 x ⅞	18 x 1¼	2¼ x ⅜	11 & 10⅝
200	20	16 x 1	18 x 1½	2¼ x ½	12⅛ & 11¾
300	20	16 x 1	21 x 1½	2⅜ x ½	13¼ & 13
600	24	16 x 1	24 x 1¾	2¾ x ½	17 & 16⅝
1000	24	16 x 1⅛	24 x 1⅞	2¾ x ⅝	19 & 18⅝
1600	24	16 x 1⅛	26 x 1⅞	2¾ x ⅝	22 & 21 11-16
2500	26	20 x 1¼	26 x 2	3 x ⅝	25 & 24½
4000	26	20 x 1½	28 x 2¼	3 x ¾	28 & 27½
6000	26	20 x 1½	28 x 2½	3⅛ x 1	31½ & 30⅞
10000	26	24 x 1¾	30 x 3	4½ x 1	37 & 35¼
16000	28	24 x 1¾	30 x 3½	5½ x 1¼	46½ & 45⅝
20000	30	24 x 2	30 x 3¾	6⅛ x 1½	54 & 53

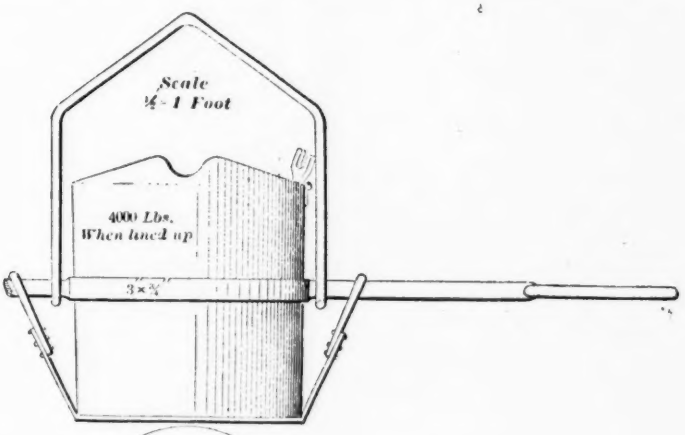


Fig. 3

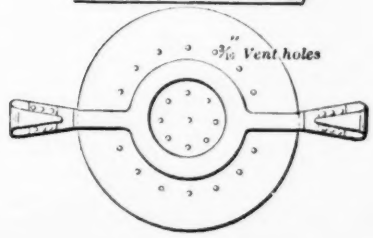


Fig. 4

The proportions and sizes given in the table for the shanks suitable for ladles of the different capacities, as shown in Fig. 5, have been obtained by careful calculation, and shanks having these dimensions will possess the lightness compatible with the necessary strength and general fitness of things. In regard to the dimensions given in column C, it may be said that for ladles up to 2,500 pounds capacity the dimensions given in this column should be used, but the diameter of the shanks for ladles of larger capacity can be reduced through a portion of their lengths.

Take, for instance, the shank for a 20,000 pound ladle; according to column C this shank should be 30 inches long and 3 3-4 inches in diameter. Now, it is not necessary to make the entire length (30 inches) 3 3-4 inches in diameter, but only that portion of the shank which connects the sling and bottom strap needs to be 3 3-4 inches in diameter; the remaining length can be made 2 inches in diameter with perfect safety. Yet it may be remarked that ladles of this size are invariably handled by cranes, and a few pounds more or less of metal in the shank where it is not absolutely needed will not materially interfere with the convenient manipulation of the ladle.

Figs. 3 and 4 represent a 4,000-pound ladle made straight. The object of showing it is merely to give the proportions of such a ladle to parties who want but one ladle of this size. The straight ladle possesses an advantage—the amount of fluid iron which it contains can be easily ascertained. The foundryman measures the depth of the fluid by putting a rod into it, and then, knowing the amount of fluid contained in one inch of depth, the total amount in ladle is quickly known.

The 10,000, 16,000 and 20,000 pound ladles should have fire-brick bottoms, as shown in the nest of ladles, Fig. 5. The sides of these ladles should be made of iron 1-4 inch thick, and the iron for the bottom should be 1-2 inch thick. The 6,000 and 4,000 pound ladles should have sides 3-16 or 1-8 inch and the bottom 1-4 inch thick. For the 300 to 2,500 pound ladles, sides 3-32, 3-16 or 1-8 inch thick, and the bottom 1-4 inch thick, will be suitable. The writer makes the 38 to 200 pound ladles of cast-iron, the bottoms 1-8 to 1-4 inch thick, the sides 3-16 inch at the bottom and tapering to 1-8 inch at the top. Generally the sides of the 38-pound ladle are made as thin as possible, with bottoms 1-8 inch thick.—*L. C. Jewett, in American Machinist.*

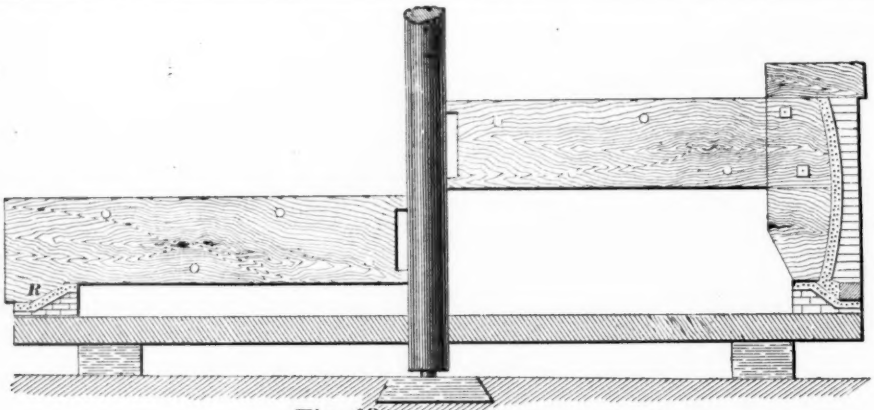


Fig. 13

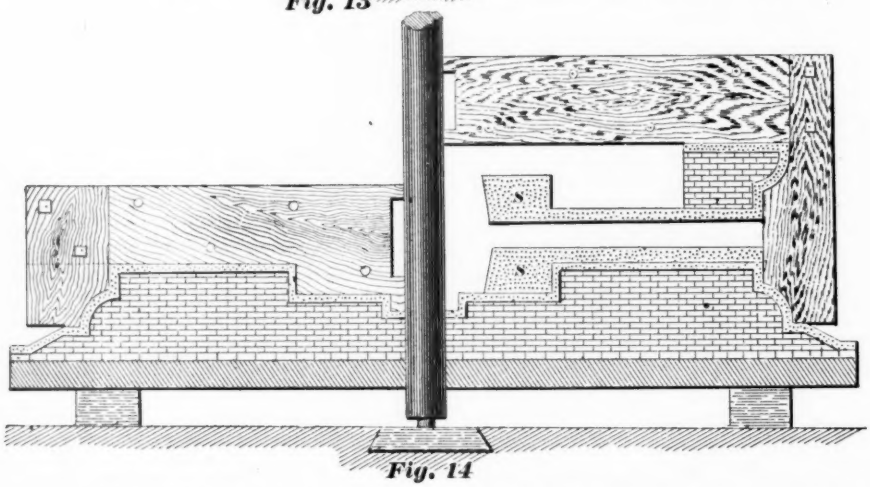


Fig. 14

MOLDING PULLEYS.

The step Fig. 10, (see article in last week's issue) is bedded in firm and level, and bottom plate, Fig. 1, leveled up on some blocks or small flasks. The shaft is put in and plumbed true. The left of Fig. 13 shows striking up the seat with sweep, Fig. 5. At the bevel *R* a parting is made. We usually use paper in a parting of this kind. The cheek ring is put on and the outside of the pulley rim is built upon it, seen to the right of Fig. 13.

It was thought unnecessary to make the arm which supports the sweeps in any of these drawings, as three views of it were given in Fig. 10. After the cheek is struck up the sweep, Fig. 6, and the shaft are taken out and the cheek lifted off. To help the loam set more speedily a moderate fire is built of charcoal in a basket made of wire or light rods. Some use a sheet-iron basket punched full of holes. The basket is hung inside the cheek or a fire is built on the ground and the cheek swung over it. Too hot a fire in the start will cause unequal expansion and is likely to split the brick work of the mold. In dressing up the surface of the loam it is a better policy to use a smooth pine block to rub it down, dipping it in water occasionally, than to slick the surface down with a trowel.

The shaft is returned and the seat for arm cores, bottom of hub and bottom core print struck up by sweep, Fig. 7. This sweep also roughs up the lower part of the inside of the rim shown on left of Fig. 14. On the right of the same drawing we have the arm cores *S S* set in and the inside of the pulley and bearing for the rim covering plate, Fig. 3, swept up by sweep Fig. 8. Sweep, Fig. 9 is now fastened to a shorter arm and the seat *T*, Fig. 15, struck up for the hub plate Fig. 4. The shaft is taken

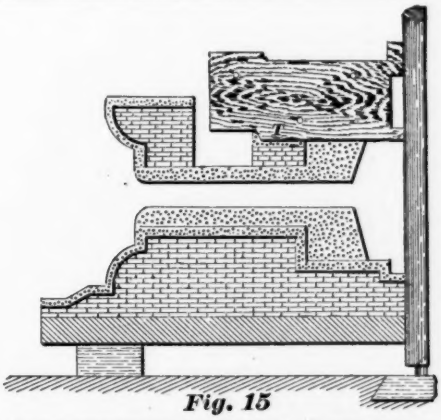


Fig. 15

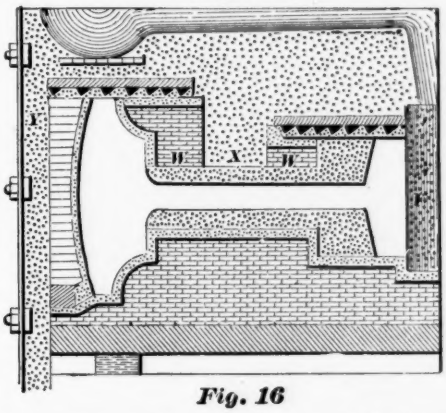


Fig. 16

out again and after the mold is dressed and blacked it is run in the oven to dry. The rim and hub covering plates are in turn put on the blocks and after being clay-washed they are covered with loam. The rim plate is struck off with upper edge of sweep, Fig. 5, and the hub plate with sweep, Fig. 9.

Fig. 16 shows in half section, the mold put together ready to pour. The mold is bound together with stirrups from the lugs on the bottom plate to a cast-iron cross (such as is commonly used to lift molds of this class but not shown here) wooden props being firmly wedged between the rim and hub covering plates and the cross; the center core is also secured by a brace from the top of the core to the center of the cross.

The brick work extending on the arm cores at *W W* is sufficient to bind them together in pulleys of this size. In large pulleys we lay plates over the cores at *X* and fasten them down from the cross. The lugs on arm core plate, Fig. 12, can be used to help clamp the arm cores together, but we seldom, if ever, use them for any purpose only in handling the core, and would not place much dependence on them when pouring a pulley of 8 to 10 tons weight.

Although we have six regular pits we never ram a mold as small as this up in a pit. The handiest and quickest way we have found is to keep on hand a number of sheets of old boiler iron of different lengths. Enough of these are used to make up the diameter and are run through the rolls to form the circle; the edges are lapped and bolted together. One of the sheets has rows of holes (to match the holes at the edges) across the whole sheet 6 inches between rows. This sheet is the last one used to form the circle, and can be lapped over as far as desired, to give as little sand room as can be got along with. *Y* represents this boiler iron curbing with the mold rammed up in it on the floor. It saves digging up the floor or ramming up a big pit, is easily taken apart when the casting is made, and stored away, and will also be found very convenient in foundries where water is found near the surface, and is all that is needed in the shape of a pit in small shops.

In the eighteen articles in this series over thirty plans of molding pulleys have been shown. Many other plans are practiced which we would be glad to profit by if offered by others.—*Robert E. Masters in the American Machinist.*

—o—

She Had Him.

Smartallick was showing off his great knowledge to a girl the other evening.

"Can a person strike unless he has something to strike with?" he asked.

"Certainly," she said, without thinking.

He gave a conquering snicker.

"What do these laboring men strike with?" and he snickered again.

"With unanimity," she replied promptly, and he pulled in his horns.

—o—

A good week's wages can be made in a day easily, in any fair-sized town or city, by an ambitious man who will undertake to take subscribers for "The Foundry."

The Foundry.

A TECHNICAL JOURNAL DEVOTED TO FOUNDRY INTERESTS.

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IF YOU FAIL to receive your paper promptly, please notify us.

THE FOUNDRY is issued promptly on the tenth of each month, and will spare no endeavor to furnish valuable news and information to those interested professionally or incidentally in molding, melting, mixing of metals, foundry management, etc. Persons connected with any of these lines of industry will confer a favor upon the Editor of this Journal by sending him news from their section of the country pertaining to the foundry interests, particularly individual theories and experiences of practical value.

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DETROIT, OCTOBER 10TH, 1892.

Thus far our fortune keeps an upward course
And we are graced with wreaths of victory.

While it may not be considered good policy to "shout before we are out of the woods," yet we cannot refrain from so far taking our friends into our confidence as to tell them all that we are more than pleased with the cordial welcome given to the first number of THE FOUNDRY. We are so far encouraged already as to warrant the announcement at this early day that, commencing with the November issue, some important improvements will be made which will greatly improve the appearance and add to the attractions of this paper; and from month to month thereafter we hope to make each succeeding number more entertaining than its predecessor. The December or Xmas number we hope will be especially pleasing, as plans are already being made to render its appearance an event in the foundry world.

—o—

RELIABLE MARKET REPORTS.

We are pleased to inform our readers that THE FOUNDRY has made arrangements with some of the largest and most reliable pig-iron dealers in various sections of America to report regularly for insertion in these columns the latest condition of the iron market. The first report appears this month; next month it will have one or two additions, and we commend it and those who supply it to all interested therein.

—o—

THE FOUNDRY AT THE WORLD'S FAIR.

The year 1893 will witness the holding in America of the World's Columbian Exposition, beyond question the greatest affair of its kind the world has ever seen. The wonderful advances made in the arts and manufactures as exemplified by the display of the best that the nineteenth century can produce, will be there shown in the most effective and instructive manner. Prominent among the other interests represented, none will be of more importance or should command more attention at the hands of the World's Fair managers, than those connected in any way with the great iron industry, and foremost among them all being everything pertaining to the great foundry business, which in recent years has developed to such immense proportions. With a view of determining what had been done in this direction, THE FOUNDRY addressed a communication to the Director-General of the Exposition, and we learn in reply thereto that the matter of awards has not yet been definitely settled, that in fact the

secretary of the committee having that matter in charge has not yet been appointed, accompanied with a promise to give the matter every consideration when it is reached.

It is imperative that this subject should not be in the slightest degree slighted by the Commissioner, and the founder, by whose skill and genius the work of the finisher is rendered possible, should be given an equal opportunity with others for the display of his handiwork, and receive as much credit and encouragement in the way of awards as any other of the world's skilled craftsmen. The thousands of foundrymen who will go there will expect and look for this, and they should not be disappointed.

—o—

IS IT HONORABLE?

The recent destruction of the plant by fire of the Union School Furniture Co., Battle Creek, Mich., is a loss which is deplored not only by the citizens of Battle Creek, but by all persons who have known of this enterprise. Among its heaviest stockholders are some of the most enterprising and careful business men of the city wherein it was located, and who have made signal success of other business ventures, some of which are now the pride of the city as well as a source of support to a good proportion of its people. In addition to successful business careers these gentlemen have achieved other successes, so much so that the prefix of "Hon." is used in connection with their names.

It would seem, therefore, that from such an estimable source one could expect nothing but the most honorable kind of business treatment, and yet these estimable gentlemen have covered every available asset with a chattel mortgage for their own personal benefit to protect themselves and a favored few from loss on account of their endorsements of commercial paper.

The list of creditors who have furnished in good faith the various articles of merchandise necessary to produce their articles of manufacture, are not included with the millionaires who are protected by this chattel mortgage.

The lumber man, the varnish man, the pig-iron man and scores of others are left to take the crumbs which possibly may be left after the millionaires are through.

If Mr. Nichols and Mr. Collier are heavy losers, why don't they take their medicine in the same doses which they administer to others?

Is there any moral right in their using the strong arm of the law to seize this man's lumber and that man's iron to help reduce their loss, brought about by a parsimonious and false economy in cutting down insurance?

Had they made a general assignment for the benefit of all creditors alike, no objection could be made, for this would have been a principle of equity, but as it is, the ones who can stand a loss the least are hit the hardest.

It is evident that the law is at fault, for such a transaction is legal, if not honorable.

—o—

SUCCESS TO YOU.

To the Editor:

I received your first copy of THE FOUNDRY, and am much obliged to you for it. The craft of foundrymen stand in need of a publication devoted to their particular line of business more than most any trade. The men composing the craft are men who cannot learn their trade except by handicraft, and reading has not, until of late years, been of much vital good, but the last few years has brought out a great many prolific writers on foundry matters, and the dissemination of their knowledge through the craft cannot fail to be of material good both to tradesmen and employers.

My library contains all the published works of importance bearing on foundry matters, and I shall welcome THE FOUNDRY to it also. I send $1 for a year's subscription. I am not a molder, but I am now and have been for twelve years superintendent of foundry and machine shops, and I can appreciate the advent of any new periodical that will advance any tradesman. I hope and bespeak success for you, and will assist you in advocating foundry knowledge by advising the reading of THE FOUNDRY.

The man with a head full of knowledge of the craft is better equipped than the man who is an automaton and has narrow and limited ideas, gained only by his personal experience and what has been pounded into him by hard knocks. Success to you.—Yours truly,

C. A. BURTON,
Supt. Kansas City Switch and Frog Co.

FOUNDRY EDUCATION.

BY J. P. PERO.

With the initial issue of THE FOUNDRY begins a new era in foundry history in America. It is a fact, though a lamentable one, that one of the leading, if not the leading mechanical art, in these days of mechanical education, has up to the present never been fully represented in trade publications by a paper devoted entirely to its interests, being content with a comparatively small space in some journal or paper published in the interest of, or for the education of, the mechanics in some of the other branches of trade.

The establishment of such a paper is the result of a demand by foundrymen in general for a medium for a freer and greater interchange of ideas and knowledge in foundry practice. It is indicative of an advancement in education of the foundrymen of to-day over their brothers of past generations, and is indirectly (at least) attributable to the efforts of representative foundrymen like West, Masters, Bolland and others, who have done much to create a demand for such literature, by furnishing their fellow-craftsmen so great an amount of interesting and valuable information.

A quarter of a century ago foundry literature was scarce, a great deal of it should have been much scarcer. I refer to that part written by some of the scientific writers whose knowledge of their subject was more than limited, whose efforts to a practical man were more than ridiculous, they were almost disgusting; they were so palpably impractical and incorrect that foundrymen, not having any "trade" books other than these, would not read them and treated with ridicule those who read them. Don't understand me as despising science in founding, for there is just as wide a field in our trade for a scientific knowledge and just as good results to be obtained from such a knowledge as in any of the sister trades.

It is with me an open question whether these works did not really help the cause of foundry literature by inciting practical men to refute their theories and advance practical ideas.

My intention in writing this article was simply to say a few words to the young men, the coming molders, and if it savors of advice, don't say "advice is cheap" and pass over it, for even though advice is cheap, good advice is of great value, and what I say is the result of an experience of over twenty years, the correctness of which is demonstrated often as I meet men and listen to their experience, then compare their standing in the mechanical world.

A very necessary adjunct to a mechanical knowledge is a good education. I do not mean that in order to be a good mechanic it is necessary to obtain a college education, but aside from the advantage of a mental training, the knowledge obtained from a good common or high school education is a great aid to the molder in his chosen vocation.

It is understood that the young man in selecting an occupation or profession should select one congenial to his tastes and abilities, and should be so thoroughly in sympathy with his choice as to not only desire, but determined to excel in it. To excel in a mechanical pursuit without an education is practically impossible; it is absolutely necessary that the mechanic acquire a certain amount of book learning if he wishes to rise above the level of his craft, and every young man should determine to attain a position at least of prominence in his trade.

A thorough knowledge of arithmetic is absolutely necessary to a foundry man who aspires to a foreman's position; the elementary principles, fractions vulgar and decimal, proportion or ratio, even square and cube root are almost daily called into play in the work of a foreman in a large foundry. You may say, "I studied these things in school and know all about them." Perhaps you did, but do you know how to apply your arithmetical knowledge in every day life?

I know three young men, graduates of a high school, who were asked by their foreman to figure the capacity of a ladle. After some figuring they gave up completely beaten. The foreman gave them the dimensions of the ladle in the form of a problem in mensuration, which they readily solved, and by giving them the weight of a square inch of iron, they easily computed the contents or capacity of the ladle. These young men had the knowledge but didn't know how to apply it.

You wouldn't trust yourself in water of a great depth with simply a theoretical knowledge of the art of swimming; the ability to apply your knowledge would be necessary in such a case. After acquiring knowledge, learn to apply it.

You will often find at least an elementary knowledge of geometry a good friend, if you are in a shop doing a variety of large and heavy work; be ready for the emergency, have your knowledge with you and be sure you can apply it.

You must be able to read a drawing in most shops to-day; don't wait to learn until the knowledge is called for; acquire the knowledge while you are yet an apprentice. Perhaps your foreman has not had the advantages possessed by you in the shape of evening schools, until shop cares, family cares and fatigue induced by severe mental and physical exertions unfit him for study, and he will be glad to impart to you some practical knowledge in return for your aid in studying and explaining his drawings. It is much pleasanter to be independent of the draughting room than to be obliged to seek explanations on every new drawing. Again, when you are designing tools and riggings, it is much easier to describe them on paper than in any other way, if you have a knowledge of mechanical drawing.

I have found a fair knowledge of the chemical composition of irons to be of inestimable value to me. I am aware many foundrymen sneer at the advantage of a chemical knowledge as applied to the selection and mixture of irons, but a chemical knowledge will in no way unfit you for looking at or forming an opinion of the fracture, and will aid you in obtaining results you could not hope to obtain either by a thorough knowledge of fractures, or by an iron salesman's prescription.

The chemical composition of iron is its pedigree, and if the dealer guarantees its pedigree (as most dealers do), you will know how to mix different irons by their pedigrees to obtain certain results, as surely as horse breeders do to obtain the best horses.

You may think the acquiring of this knowledge entails a great deal of study; it does; but remember, in addition to the valuable knowledge obtained, you gain a mental training that makes you thoughtful and more able to cope with questions, situations and ideas in life that are being constantly thrust upon you. While a working man spends the greater part of his time in the shop, there are certain social obligations to which he is amenable, and for which he should be prepared or educated. First, use good language; I mean speak correctly, use good grammar, find time to study the important questions of the times—social and political, don't be a socialist or politician, but have well-defined views on these questions, think for yourself, don't be led by demagogues in either path, but having given these questions a reasonable amount of thought, define your position and hold it.

A young friend to whom I talked in this strain, answered me thus: "A man would need a college education to meet the requirements of your ideal of a molder." Such is not the case, but I believe a college education would in no way unfit a man for a foundryman; on the contrary, the time has arrived when a mental strength is just as essential to the success of a foundryman as is physical strength, with the scales a little in favor of the man who has the knowledge and the ability to apply it.

—o—

Canadian Notes.

The Goldie & McCulloch Co., Limited, Galt, Ont., are building two engines of 300 horse power each for the Canada Screw Co., Hamilton, Ont.

The McClary Mfg. Co., London, Ont., have moved into their new offices, which present a very attractive appearance. Neither trouble nor expense have been spared to make them among the finest business offices in the province.

Messrs. Bertram & Co., Toronto, have purchased the entire plant of the John Doty Engine Co., and will carry on the business under the name of the Doty Engine Works Co.

Messrs. Carrier, Laine & Co., Levis, P. Q., have secured the contract for the new steam disinfector on the super-heating principle which is to be erected at Grosse Isle. The apparatus must be in working order by the end of November, according to contract.

Messrs. Clare Bros. & Co., Preston, Ont., report this to be the best season they have had for hot-air furnaces, etc.

—o—

Special rates for ten or more subscriptions sent in at one time.

The Markets.

REPORTED EXPRESSLY FOR "THE FOUNDRY."

CINCINNATI.

Oct. 1, 1892.

The week has been an active one in the iron market. No orders of magnitude are reported since the Alabama furnaces advanced prices 25 cents per ton, but a great many small ones have been booked. Buyers cheerfully pay the small advance, recognizing that the prices are still abnormally low, and generally unprofitable to furnaces. The demand has been widely distributed, coke irons, charcoal irons and softeners sharing in the movement. Bessemer, however, lags.

A close eye is kept on the statistics of stocks. It is believed that the report of October 1st will show another heavy decline. It is certain that some districts are reducing stocks. Personal observation at many plants in the South the past week shows that current shipments are in every case beyond current product. The disposition, however, is to be very conservative in any marking up of prices, because it is not forgotten that there are a good many furnaces ready to join the list of producers just as soon as prices reach a point where there is the least profit in making iron.

The general influences are unchanged. The cholera scare is over. Money is working easier in the West. Foundries and mills find the demand for finished forms maintained even beyond their expectations.

Final agency arrangements for the new Tennessee-Debardeleben combination were confirmed during the week. They give to Rogers, Brown & Co. the Ensley, South Pittsburg and Sewanee brands (eight stacks) in all territory west of the Alleghenies, and to the same firm all territory east of the Alleghenies for the Debardeleben and Alice brands (nine stacks).

We quote for cash f. o. b. cars Cincinnati:

Southern Coke, No. 1 F'dry	$13 25	$13 75
" " No. 2 " and No. 1 Soft	12 25	12 75
Hanging Rock Coke, No. 1	15 50	16 00
" " Charcoal, No. 1	19 00	20 00
Tennessee Charcoal, No. 1	16 00	16 50
Jackson Co. Stone Coal, No. 1	16 00	16 50
Southern Coke, Gray Forge	11 25	11 75
" " Mottled	11 00	11 25
Standard Alabama Car Wheel	18 00	19 00
Tennessee "	17 00	17 50
Lake Superior	17 50	18 00

Rogers, Brown & Co.

BUFFALO.

Oct. 1, 1892.

The week has been an especially quiet one, but during the last two days considerable activity has been noticed. Prices are firm, and shipments are curtailed only by car famine, which on certain lines is very severe. Although Southern irons are firm at an advance of 25 cents, Northern irons still remain at their previous low prices.

We quote for cash f. o. b. cars Buffalo:

No. 1 X Foundry, Strong, Coke Iron, Lake Superior ore	$15 25
No. 2 X Foundry, Strong, Coke Iron, Lake Superior ore	14 25
Ohio Strong Softener No. 1	15 25
Jackson County Silvery No. 1	17 30
Lake Superior Charcoal	16 25
Tennessee Charcoal	17 00
Southern Soft No. 1	13 90
Alabama Car Wheel	19 00
Hanging Rock Charcoal	20 50

Rogers, Brown & Co.
W. T. Shephard, Mgr.

ST. LOUIS.

Oct. 1, 1892.

The same conditions exist in the local market as reported last week. The advance of 25 cents per ton on all grades of Southern coke iron is being maintained, and furnaces decline to accept orders at prices ruling last month.

There is an increased demand for Southern charcoal iron, and, owing to the limited supply, this grade of iron is also being sold at advanced prices.

We quote for cash f. o. b. cars St. Louis:

Southern Coke No. 1	$13 75	$14 25
" " No. 2	12 75	13 25
" " No. 3	12 50	12 75
" Gray Forge	11 75	12 00
" Charcoal No. 1	15 50	16 00
" " No. 2	15 00	15 50
Missouri " No. 1	14 50	15 00
" " No. 2	14 00	14 50
Ohio Softeners	16 50	17 00
Lake Superior Car Wheel	17 75	18 25
Southern "	18 25	18 75
Frick's Connellsville Foundry Coke		5 65

Rogers, Brown & Meacham.
J. K. Pollock, Mgr.

CHICAGO.

Oct. 1, 1892.

The healthy condition reported a week ago still continues in this district. The Southern manufacturers are maintaining their position of firmness, and are now getting 25 cents per ton greater on nearly all grades than was the case last month. On certain numbers they have advanced prices a trifle more than this, on account of heavy contracts booked. Inquiries continue active and on the increase, yet, for the most part, consumers are willing to pay an advance in price over figures which were offered during July and August. Many of them would gladly buy at such figures, but are unable. Meanwhile, manufacturers both North and South are occupying an independent position. The increase of inquiries indicates that consumers are beginning to recognize that the market has fairly turned, and are disposed to purchase to cover balance of their requirements for the next few months. There is no let up in the way of consumption, and requests are numerous to hurry shipments, showing that stocks are running short in the hands of many consumers.

Charcoal irons remain unchanged. Furnaces making this kind of metal are busy with shipments; those having lake connections find that they have all they can do to complete contracts calling for water shipment before navigation closes.

We quote for cash f. o. b. Chicago:

Southern Coke, No. 2 Foundry	$13 50	$14 00
Southern Coke, No. 2 Soft	13 10	13 60
Lake Superior Charcoal, Nos. 1 to 6	17 00	17 50

Rogers, Brown & Merwin.

BOSTON.

Oct. 1, 1892.

We quote for cash, delivered Boston:

Standard Alabama 1X Strong	$14 75	$15 25
" " 2X "	13 75	14 25
" " 1 Soft	14 75	14 25
Niagara (Strong L. S. Coke Iron). No. 1 Foundry		17 00
Embree (Foundry Bessemer) IX		15 25

Rogers, Brown & Co.,
L. L. Hull, Resident Agent.

PHILADELPHIA.

Oct. 1, 1892.

We quote for cash f. o. b. cars Philadelphia.

Standard Penna. No. 1 X	$15 00...$15 50
" " " 2 X	14 00....14 25
Standard Ala. No. 1 X	15 50....15 50
" " " 2 X	14 00....14 50
" " Rolling Mill Forge	12 50....13 00
Lake Superior Charcoal	18 00....18 50
Standard Alabama Car Wheel Iron	18 00....18 50

Rogers, Brown & Co.,
J. M. Warner, Mgr.

DETROIT.

Oct. 8, 1892.

There has been very little change in the iron market during the past month. Statistics show that consumption is in excess of production, but buyers are satisfied that prices cannot advance to any appreciable extent so long as there is such a large surplus on hand. Another reason advanced is that there are too many furnaces ready to go in as soon as they can see any profit in doing so. Notwithstanding the fact that buyers appear indifferent, the aggregate bought within the last two weeks has been greatly in excess of the purchases for the same length of time for several months. Structural and car material is in better demand, and some advances have been made and considerable buying at the higher figures. We would report the market as firm and demand good, and quote as follows:

Lake Superior Charcoal, all numbers	$16 50...$17 50
" " Coke (Bessemer)	16 00....16 50
" " " Foundry, all ore	16 00....17 60
Standard Ohio Black Band (40 per cent)	16 50....17 00
Southern No. 1	14 50....15 00
Southern Gray Forge	12 50....13 00
Jackson County (Ohio), Silvery	17 75....18 25

William F. Jarvis & Co.

PITTSBURGH.

Oct. 4, 1892.

In a general way the condition of this market may be said to be more hopeful than for some months past. The mills are actively employed and the consumption of raw material is now thought to be in excess of the production. Old stocks of pig iron are being reduced, and while prices are still at the lowest notch ever known yet, this very fact undoubtedly helps to stimulate business and thus to assist in working its own cure. Already some makers of pig iron are holding off and declining to contract very far ahead at the figures now ruling. The following quotations are for cash, f. o. b. cars Pittsburgh:

No. 1 Foundry	$14 50...$15 00
No. 2 "	13 50....14 00
Gray Forge	12 50....12 75
Mottled and White	12 00....12 25
Warm Blast Charcoal	18 00....22 00
Cold " "	22 00....27 00
Bessemer	14 00....14 25

A. H. Childs.

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A correspondent writing from Florida gives the following as the average extent of the foundry business in that state: Palatka, Fla., one molder; Jacksonville, two foundries, one has two and sometimes three molders, the other has one; Ocala, two molders and the work is very unsteady; Tampa, one man works three days a week.

Two New Foundry Supply Companies.

The S. Obermayer Co. of Cincinnati have, together with Geo. S. Emerick of Philadelphia, and some Philadelphia capitalists, organized a company with a capital stock of $50,000, to be known as Geo. S. Emerick Co., to carry on a general foundry, facing and supply business in the latter city. As a preliminary step they have purchased the facing mills of Geo. W. Brown, near Allentown, Pa., which will be used exclusively for the manufacture of pipe blacking, car wheel facings, etc. Negotiations are now in progress for the erection of a plant to be used exclusively to grind sea coal in the vicinity of Pittsburg. The Philadelphia office will be under the charge of Geo. S. Emerick, lately with the firm of J. A. Emerick & Co., and who is conceded by experts to be the equal of any facing mill man in the country in a thorough understanding of the business in all its details, especially the manufacture and mixture of fine facings. They have secured a desirable location at Pier 35½ N. Delaware-st., where they have exceptionally good facilities for shipment by water, and have a branch of the Philadelphia and Reading R. R. to handle inland trade promptly.

The same parties have organized a company in Buffalo, N. Y., which has been capitalized to the same amount, and have secured a desirable location with four lines of railroad adjacent to the property, where it is intended to erect a facing mill of the most modern and approved description, and which will be under the supervision of Mr. S. H. Merrick, formerly of Hamilton, Ont. The S. Obermayer Co. and its associates appear to have unlimited confidence in the future of the foundry business, as evidenced by their enterprise in these directions, and it is to be hoped they may be fully as successful as they anticipate.

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The Joseph Dixon Crucible Co., Jersey City, are mailing to their patrons a neat calendar for October which shows three thoroughbred Americans as they appeared when Columbus landed on these shores, watching the arrival of his ship. They appear to be dressed with a full suit of leaves about the waist, feathers in their heads and a "broad grin," armed, of course, with a mammoth lead pencil bearing the legend — "Dixon's American Graphite Pencils."

THE WHITING CUPOLA.

The Detroit Foundry Equipment Co. are the exclusive patentees and manufacturers of the Whiting cupola, which is among the latest and most popular of the patent cupolas which have come upon the market in recent years.

The company was organized some six years ago, their object being to manufacture, among other things, the Whiting system of improved car wheel foundry plants, and improved foundry equipment of all kinds.

The Whiting cupola was patented on August 16, 1886, and was the outcome of efforts by Mr. J. H. Whiting, as superintendent of the Detroit Car Wheel Co., to reduce the cost of melting iron in that plant, and at the same time to increase the capacity of the foundry. The cupolas were put in this foundry as an experiment, replacing cupolas then in operation there. It was Mr. Whiting's theory that by a more equal and convenient distribution of the blast, a large amount of the fuel could be saved and the wear and tear on the lining would be largely overcome. Tho results surpassed his fondest expectations, and after giving the cupola a thorough trial in these works all the other cupolas were taken out and the entire foundry supplied with the Whiting cupola. They have at present six of these cupolas in operation, and are melting from 200 to 250 tons of iron daily. The marked success encouraged Mr. Whiting to put the cupola on the market, and the first one was sold about four years ago.

Manufacturers no sooner became acquainted with its merits, than the demand for them became so great that a special shop was built for their manufacture. From that time various improvements have been added, until at present the company have found it necessary to secure larger quarters and have recently moved into their new works at the corner of Michigan avenue and the Detroit & Bay City R. R., where they have improved facilities for turning out not only cupolas, but special cranes of all kinds, and where they are manufacturing in connection with the cupola business the Whiting improved system of car wheel foundry plants, ladles of all descriptions, etc.

The sales of the Whiting cupola for the last year have surpassed expectations. It has been found to be invariably the case that where one Whiting cupola was introduced into a locality, others were sure to follow. The first one was put into Chicago about two years ago; there are now in operation in that city over twenty of this make, and they are being used by such representative firms as Fraser & Chalmers, Barnum & Richardson Mfg. Co., and many others.

The success of this cupola is due largely to the arrangement and construction of the patent tuyers, and to the very heavy and substantial method of construction.

Twelve sizes are manufactured, covering all capacities from ½ ton to 25 tons per hour. The company have but recently built a No. 11 cupola, having capacity from 20 to 25 tons per hour, and now have under construction in their works a No. 10. They are also constructing four large cupolas to be used in the new works of the Carnegie Steel Co., at Bessemer, Pa. This company placed the order for the Whiting cupola only after they had made an exhaustive search through the entire country for a cupola that would give them the service they required. The foundries of this plant probably melt more iron per day than any other foundries in the country.

A great advantage possessed by the Detroit Foundry Equipment Co. in the manufacture of an article of this kind is the long experience—covering over twenty years—in the practical foundry business possessed by Mr. J. H. Whiting, president of the company, he having been superintendent of the Car Wheel Co. for over half that length of time and having had large experience in melting all kinds of iron, ranging in quality from that of the thinnest stove plate to the very heaviest castings. The experience obtained during this period has of course proved invaluable to the company as designers of foundry machinery of all kinds, and they never hesitate to give their customers the benefit of any information they have secured regarding the proper operation of cupolas or improved methods and ideas of foundry practice.

The company would be pleased to see their old customers or any one contemplating purchasing machinery or building a foundry, at their new works in Detroit. Branch houses have been established at 62 West Jackson St., Chicago, and 47 Cedar St., New York City.

New Foundry Enterprises.

A building 80x150 feet is to be added to the malleable iron foundry connected with the Laconia Car Works, at Laconia, N. H.

At Newburgh, N. Y., a company has been formed to manufacture engines and general machinery at the old Washington Iron Works.

The new foundry which Gaar, Scott & Co. are building at Richmond, Indiana, will be 200x100 feet. A new engine and boiler will be needed.

The new foundry plant which has been in course of erection for Orr, Painter & Co., of Reading, in Milmont, Pa., will soon be completed.

Chicago Casting Company, Chicago, Ill., asks for a charter. Capital, $15,000; incorporators, Charles E. Tuerk, Charles S. Morton and Adolph G. Tuerk.

The Vulcan Iron Works, Wilkesbarre, Pa., is building a boiler shop 80x150 feet, and the blacksmith shop will be increased 50x100 feet, and the foundry extended 50 feet.

The Fulton Tool & Manufacturing Company, Canal Fulton, O., has added a foundry and machine shop to its works. It is now making pit-cars, car-wheels, axles, etc.

The Great Western Steel Casting Co. of Peoria has been incorporated; capital, $100,000. The incorporators are John H. Francis, Frank S. Gogin, and George J. Gibson.

Ground has just been broken for the new foundry, which was noted some time ago in these columns, as projected by the Carnegie Steel Co. for its Edgar Thomson steel works.

The Canton (O.) Foundry and Machine Company has been capitalized at $25,000, for manufacturing iron and brass castings and machinery of various kinds. Jacob H. Weidman is an incorporator.

The Glenmore Foundry & Machine Company, Philadelphia, Pa., has been incorporated to manufacture wrought and cast iron and other metals. Capital, $100,000. Incorporators, Jones Wister, H. E. Frick, J. McGregor Gibb.

The Jefferson Foundry & Machine Shop, of Jefferson, Texas, has been succeeded by the Iron City Foundry & Machine Company, with $25,000 capital. The officers are J. M. DeWare, president; W. F. Atkins, treasurer; W. Murray, manager.

The new foundry and warehouse in course of erection by the Westinghouse Air Brake Co., at their Wilmerding plant, will be finished by October 21. The work is progressing rapidly, and when completed will give employment to about six hundred men.

The Canton Foundry & Machine Co., of Canton, O., who are building their works, will need an elevator, 100 feet of belting and an electric motor. The buildings are to be 150x65 ft., 60x30 ft. and 30x20 ft. The product will be iron castings and hot water heaters.

Joseph Ben, president of the Joseph Ben Stove Company, of Wheeling, W. Va., is at Munice, Ind., planning for the erection of the extensive foundry for which removal arrangements were consummated some time ago. The removal will take place about January 1.

A new company known as the F. R. Patch Foundry Company have purchased the plant of the Harris Manufacturing Company, at Rutland, Vt., and will make a specialty of foundry work. The incorporators are F. R. Patch, G. T. Chaffee, W. A. Harris and N. K. Chaffee.

The contract has been let for the new buildings of the Buffalo Foundry Supply Co., at Buffalo, N. Y. The plans call for brick buildings occupying a frontage of 270 feet, and will run one, two and four stories high. They will include offices, warehouses and foundry. The total cost will be about $25,000.

The Kepp Gear Wheel & Foundry Co. will soon begin operations in Allegheny, manufacturing, besides general machine castings, its specialties of gear wheels, pinions, spur wheels with angle teeth, mortice wheels, worm wheels and hunting tooth gearing. The company will use in the manufacture of its gearing the Kepp gear molding machine.

TLe Union Brass & Metal Company, St. Paul, Minn., have bought a two-acre site and will have works in operation by January 1. The capital is $50,000. The North Star Smelting Works, of Minneapolis, have been absorbed. A brass foundry, 120x30 feet, a finishing shop, 60x80 and a storehouse, 40x80, will be built and an iron foundry will be added later. Theo. Michel is president, Henry F. Hodge, vice-president, Ernest Seitz, secretary.

A new foundry plant is being erected in Allegheny by Taylor, Wilson & Co., Limited, at present located on Duquesne way, this city. The foundry building is 75x125 feet, built entirely of iron, and will have modern equipment, as also will the whole of the plant. A 15-ton electric traveling crane and two jib cranes will be employed to handle the castings and the melted iron, which will be reduced in an 8 and a 25-ton cupola. The machine shop will be a brick structure of three stories 50x120, equipped with all necessary machinery, including two iron jib cranes for manipulating heavy castings. Operations will begin in November on the firm's usual line of work, consisting of railway, rolling-mill and machinery castings. The present plant on Duquesne way will be abandoned April 1.

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Agents are wanted immediately in every town and city of America to secure subscribers for "The Foundry."

Among the Foundries.

It is expected that the Adams foundry in Dubuque, Ia., will be operating by another week.

The Garland Range Stove Foundry, Wheeling, W. Va., have arranged for the removal of their plant to Muncie, Ind.

The Denver (Col.) Hardware Mfg. Co. have let the contract for the iron foundry, 184 x 60 feet, and it will be finished in sixty days.

A. J. Hartman has just finished his new shop in Grand Rapids; it is 56x110, and its owner, who is something of a hustler, is quite proud of it.

Nichols & Shepherd, Battle Creek, Mich., are putting in a 40 ton cupola in their foundry, and putting down a track to carry off the iron. Emory Morse is the foreman.

One day recently A. F. Bartlett's foundry in Saginaw, Mich., cast a pulley weighing ten tons and a bed plate weighing five tons. Alex. Finlay is the foreman here.

The Southside Foundry Co. has come to be one of the important industries of Indianapolis. It employs 60 men and has a large trade throughout the gas belt.

The Penn Steel Casting Co., Chester, Pa., have made their first heat from their new open-hearth furnace. Everything about the plant worked to the entire satisfaction of the company.

Messrs. Patrick J. Fanning and Michael Barrett, two of Cleveland's ambitious young molders, have gone into partnership and built a convenient and commodious brass foundry on Hamilton-street in that city. They deserve success.

The South Milwaukee Malleable Iron Works will start up soon, having just completed two large buildings. By Jan. 1 next iron will be melted at South Milwaukee at the rate of over 10,000 tons a year, the Hatch Cutlery Co. melting 3,000, the Bucyrus Co. 5,000, and the Malleable Co. 3,000.

The Co-operative Foundry and Machine Co. has been incorporated at Sandusky, O., with a capital of $10,000, to manufacture and sell all kinds of machinery and do a general foundry and machine business. The incorporators are John J. Molter, August Geideman, Charles H. Close, John Staigle, Conrad Kreimes.

THE FOUNDRY is greatly indebted to many friends in various localities for the unexpected assistance it has received in the way of forming clubs of subscribers. To mention any names here would create an invidious distinction, and further than mentioning that Edward Nicklet, foreman of the Vulcan Foundry, Toledo, was the first to notify us that he had a club formed, and that John Pettigrew, of Joliet, Ill., was the first to send in the cash for a club, we will only say that we are sincerely thankful to all. Some of these clubs, like the one from Mr. Pettigrew, have contained from 20 to 45 names, and it is appreciated as an evidence of substantial friendliness that, if universally copied, would make this paper, inside of 00 days, as fine a trade journal as is produced in America.

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Notice.

All advertisements under this head given two insertions free of charge when placed therein by subscribers. All others will be charged 2 cents per word for each insertion.

SITUATION WANTED—As foreman or superintendent of foundry. Have 29 years' experience as molder and foreman with light and heavy castings in machinery, safe work, furnace and jobbing. Accustomed to handle 90 molders, buy iron and coke, etc. In fact, am thoroughly acquainted with everything pertaining to the foundry Address "Hustle," THE FOUNDRY. 9

WANTED—Foundry foreman in Chicago, Give experience, references and wages wanted. Address "L. X.," this office. 10

WANTED—Foundry foreman; one that understands green and dry sand work and thoroughly conversant with modern methods, and can handle men with good advantage; must be temperate and steady; to take charge of modern foundry fitted up with first-class appliances, it being part of an elaborate new manufacturing plant situated in a beautiful city of 10,000 inhabitants; unsurpassed school and church privileges. Address, stating age and salary wanted, "A," care of FOUNDRY, Detroit, Mich. 10

WANTED—Foundry foreman, in Chicago; give experience, reference and wages wanted. Address, "I. X.," this office. 10

FOR SALE—Foundry business. We offer our business for sale. We are located in central New York in a place of about 8,000 inhabitants, a live, growing town, has more than doubled its population in ten years and bids fair to continue. We have the only foundry in this vicinity, but owing to our health being poor we want to get out of all kinds of business and try some other climate. We have not been able to give it as much attention as it should have, and declined to take contracts which would amount to several thousand dollars a year on that account. We carry a stock of from 3,000 to 5,000 dollars, could be reduced to suit customer. Address, "J. M." 81 Ford Ave., Oneonta, N. Y. 10

FOR SALE—Half interest in foundry and machine shop; No. 1 opening for a molder or machinist; good location; will sell cheap. John E. Warr, Atlantic, Ia. 10

FOR SALE—Foundry and machine shop in a flourishing manufacturing city; small capital required; satisfactory reasons for selling. Address, Wm. Engbeing, Cedarburg, Wis. 10

Some Kind Words.

The following are a few extracts from some of the hundreds of letters we have received since the first copy of THE FOUNDRY was mailed. They come from all sections of the country, and give evidence of a remarkable degree of unanimity on the part of a great many different people:

We are well pleased with the paper in every respect, and assure you that in our opinion you are deserving of great credit for the work and publication you have given us.

S. OBERMAYER CO., Cincinnati.

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Copy of THE FOUNDRY received, and is to all intents and purposes what you said it would be —"a first-class foundry journal"—and being so success is certain. SIMPSON BOLLAND,
Brooklyn, N. Y.

—++—

I was very much pleased with your paper received in yesterday's mail. THE FOUNDRY will fill a long-felt want in my case, and is the kind of journal I have often wished might be found.

W. A. JENKINS, Foundry Foreman,
Charter Gas Engine Co., Sterling, Ill.

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You have our best wishes, and we can see no reason why you should not succeed.

STUART R. CARR & Co., Iron Founders,
Baltimore, Md.

—++—

Allow me to compliment you on the appearance of THE FOUNDRY. I think it looks very well. W. E. WILKES, Secretary
Int'l B'hood Machinery Molders.

—++—

We are in receipt of your valuable paper—THE FOUNDRY—and think it grand.

DIAMOND CLAMP AND FLASK WORKS,
Richmond, Ind.

—++—

I have seen the September number of THE FOUNDRY, and think it a good publication to be in the hands of foundrymen.

A. L. WHITE,
With C. & G. Cooper Co.,
Mt. Vernon, O.

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Copy of THE FOUNDRY to hand, and I am much pleased with it. JOHN PETTIGREW,
With Illinois Steel Co., Joliet, Ill.

—++—

We have received sample copy of your paper and think it very good, and wish you success.

L. M. ROUSE & Co.,
Iron Founders, Chicago, Ill.

—++—

A good idea.

P. A. KILVER,
Sec'y York Foundry and Engine Co.,
York, Neb.

Will help anything that helps the foundry.

E. H. MUMFORD,
With Henry R. Worthington Co.,
Chicago, Ill.

—++—

Its a winner from way back.

GEORGE F. CRIVEL,
With Chicago Foundry Supply Co.

—++—

Am in receipt of THE FOUNDRY. It is a field that should have been filled long ago, as there has long been a demand for just such a paper.

MORTON DAUBENSPECK,
Joliet, Ill.

—++—

I think it is just what is wanted. It will bring us as a craft closer together, and, I trust, teach charity, temperance and manhood. I will do all I can for it. DAVID SPENCE,
Foundry Foreman, Demorest Mfg. Co.,
Williamsport, Pa.

—++—

I believe it will be of great assistance to foundrymen throughout the country, and wish you every success. H. W. JOHNSON,
Foreman Foundry J. F. Noyes Mfg. Co.,
Buffalo, N. Y.

—++—

All those who have seen it are highly pleased with it. JOHN HILL,
With S. Obermayer Co.

—++—

Am well pleased with it.

T. M. KENWORTHY,
Newark, N. J.

—++—

We have noted with interest the first copy of your paper, and hope you will be able to more than realize your anticipations regarding it. It seems to us that you have a large field, and the foundrymen ought to give liberal support to a well-conducted paper like yours.

ROGERS, BROWN & Co.,
Mfrs. and dealers in Pig Iron, Steel and Coke,
Cincinnati, Chicago, St. Louis,
Philadelphia, Buffalo, Boston.

—++—

It was with the greatest of gratification I perused the pages of the first number of THE FOUNDRY, as I have for several years past desired to see a paper devoted exclusively to foundry work, and every page in the first issue demonstrated that it is to be strictly a foundry paper, so much so that when one handles it he can almost *smell* the foundry. I admire the energy exhibited in its management, and feel that no reader will be disappointed in not finding surprising and valuable improvements in every new issue. You have made a most creditable beginning, and I wish THE FOUNDRY the success it so well deserves. THOS. D. WEST,
Sharpsville, Pa.

We are glad to see some one enter the field that you have undertaken, and predict for you a great success. GEORGE H. HULL & CO.,
Wholesale Dealers in Pig Iron and Coke,
Louisville, Ky.

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The first number of THE FOUNDRY, a journal that is to devote itself undividedly to the foundry interests of the country, comes to us from The Foundry Publishing Company, of Detroit. THE FOUNDRY has a good look to begin with, has 32 octavo pages, besides cover. and its contents are such as to justify a prediction of success. John A. Penton, who was the editor of the *Machinery Molders' Journal*, is at the head of the new enterprise.—*Iron Trade Review*. Cleveland, O.

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THE FOUNDRY is the title of a monthly publication recently started in Detroit, Mich. It is managed and edited by Mr. John A. Penton, who has been educated in the foundry and has had newspaper experience as the manager of the *Machinery Molders' Journal*. THE FOUNDRY is a very bright and well edited paper. Mr. Penton assures his friends that subsequent issues will not only be as good as the initial number, bearing date of Sept. 10, but better. Mr. Penton is receiving subscriptions very rapidly, and the general expression of good will and intention to support contained in the correspondence the editor of the *Scientific Machinist* saw in the office of THE FOUNDRY last week can mean nothing else than a sure forecast of a fine success.—*Scientific Machinist*, Cleveland, O.

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THE FOUNDRY is the name of a new paper started here, to be the national organ of the foundrymen. It is a 32-page monthly, is a money-maker from the start, and has John A. Penton as editor.—*Detroit Journal*.

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THE FOUNDRY—a monthly started at Detroit, the September issue being the first number of the first volume—marks a new departure in trade journalism, as this publication is the first attempt to give special representation to the foundry branch of the manufacturing industry in the United States. It promises to be a useful exponent of the interests which it champions.—*Industrial World*, Chicago.

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The latest Detroit publication made its appearance to-day under the title THE FOUNDRY. It is a technical journal devoted to the foundry business, The first number is very presentable, containing 32 pages of reading and advertisements. The leading articles treat of "Foundry Ovens" and "Early Days of Steel Founding." The Foundry Publishing Company is officered by J. M. Macfarlane, president; S. E. Whitney, vice president, and John A. Penton, secretary-treasurer.—*Detroit Evening News*.

In my opinion there is a wide field open for such a journal as you describe. Although a young man, I can remember when "foundry" articles were scarce in mechanical papers—the greater proportion of them written by scientific rather than practical men, and, if read at all, read by the same ciass.

Practical foundry writers were scarce, but with the advent of West, Masters, Bolland and others has sprung up a demand for such literature which *must* be met. I wish you every success in your new undertaking.—Yours,

J. P. PERO.

WARE, MASS.

—++—

Your circular letter of the 8th ult. has been received, and I decide with you that the publication such as you purpose to edit cannot help but be favorably received among people who are engaged in the foundry trade, from the fact that there are so many jobbing foundrymen who make machinery castings, also stove plate and bench work. I think by publishing matters of interest to all the different branches of the foundry trade that it will make your book more acceptable.

The Foundrymen's Association takes an active interest in procuring valuable information for those who are engaged in the foundry business. You will agree with me that at the present price which castings bring in the market there is little room for profit, and while our Association does not purpose to take a hand in putting up the prices of castings, it hopes to show the foundryman how to calculate his cost by teaching him that iron and molding sand are not the only things that go to make up the *cost of castings*. Too much stress cannot be paid to this matter of cost, as it is the most important feature of the foundry trade. The cost of material, rent or the interest of capital, taxes and the cost of marketing are all a part of the cost of castings; besides, it often happens that the casting after being poured is found to be defective, and goes to the scrap heap, which loss must be covered by the good castings that are made. Therefore we think if we can teach the foundryman what his castings cost to make and market he will not be so anxious to sell them at the very low price at which they are selling to-day.—Yours very respectfully, HOWARD EVANS,
Secretary Foundrymen's Association.

PHILADELPHIA.

—++—

Your proposition to publish a monthly paper devoted exclusively to the foundry business I hail with pleasure, and think it would fill a long felt want. It would have a tendency to elevate and educate the followers of our craft and cause them to think, and thought and study bring improved methods and ways of working. You may put my name on your list of subscribers, and

with the wish that your endeavors may meet with the success they so richly deserve, I am, respectfully, GEO. F. STONEY.

BUTTE CITY, MONT.

—++—

Replying to your circular of the 8th ult., there exists not the shadow of a doubt but what a good, live, progressive publication, devoted entirely to foundry interests, would be received as a journal of that kind rightfully deserves, and I believe that it would meet with a good, sound financial support. There is nothing more apparent than that if you can once get molders to read proper literature it will develope exactly what makes men valuable to their employers and increases their own self respect. The one great thing to bring about a proper solution of the labor question is education.—Yours,

W. A. JONES.

CHICAGO.

——o——

As it Should be.

Many of our readers may have heard from time to time of the Sturtevant system of heating and ventilating foundries, and we feel that those who have not would be interested if it were brought to their attention. It is a fact that in the larger foundries throughout the country, particularly the new ones, as much attention is being given to the heating and ventilating of them as to any of the other details.

This matter has been neglected in years past, and stoves and a few runs of steam pipes have been thought sufficient for the heating of the foundry. The larger and best concerns are rapidly changing their methods, and among their improvements in foundry construction and fitting is the Sturtevant system of heating and ventilating these buildings. The practical and thorough heating of the foundry is quite a study, and when it is done properly is, without doubt, one of the greatest improvements in their construction. Among recent large orders of the B. F. Sturtevant Co. for their heating and ventilating system are the large new foundry of Frazer & Chalmers, Chicago, Ill.; Illinois Central R. R., Burnside, Ill.; Brooks Locomotive Works, Dunkirk, N. Y.; Schenectady Locomotive Works, Schenectady, N. Y.; Troy Malleable Iron Works, Troy, N. Y.; Siemens & Halske Electric Co., Chicago, Ill.; Canda Mfg. Co., Carteret, N. J.; The Lake Erie Engineering Co., Buffalo, N. Y.; Corliss Safe and Vault Door Co., Providence, R. I.; Miles Tool Works, Hamilton, Ohio, and the Grant Locomotive Works, Chicago, Ill.

Among the older customers who are using this system for heating and ventilating their foundries are the following: Southwark Foundry & Machine Co., Philadelphia, Pa.; The Link Belt Machine Co., Chicago, Ill.; Morgan Engineering Co., Alliance, O.; Superior Malleable Iron Co., West Superior, Wis.; Superior Stove Co., West Superior, Wis.; Case Mfg. Co., Columbus, O.; Robert Poole, Son & Co., Baltimore, Md., besides many others.

The Sturtevant Co. have issued a 130 page book entitled, "Five Hundred Representative Buildings Heated and Ventilated by the Sturtevant System," which they will be pleased to send to any one who may be interested in this subject.

The B. F. Sturtevant Co.'s Works are located at Jamaica Plains Station, Boston, Mass., and have branch stores at 16 South Canal St., Chicago, Ill.; 91 Liberty St., New York, N. Y.; 135 North Third St., Philadelphia, Pa.; and 75 Queen Victoria St., London, E. C., Eng., where catalogues may be obtained upon application.

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A New Works.

The new works of the Thomson-Houston General Electric Company at West Lynn, Mass., is nearing completion, and is progressing very rapidly for such an extensive plant. When completed it will be one of the finest in the country as they are sparing no expense in equipping it. They will use electricity wherever they can practically do so; in fact most everything will be run by that power. The gray-iron foundry will be 120x340 feet; for the present a part of this will be used as a blacksmith shop. The center will have a span of 60 feet, with wings on the side 30 feet. They have already contracted for one 30-ton electric traveler for the center span, and expect to put the second, of the same capacity, in soon. The wings will have electric travelers running full length, so that every part of the foundry will be covered with cranes and available for crane work. The cupolas, which they have already bought of Byram & Co., Detroit, Mich., are three in number, and will be placed on the side, and near the center of foundry; there will be two 75-inch and one 42-inch, all to be charged from the same scaffold. The building for steel founding is about 40 feet from the gray-iron foundry, and is somewhat nearer completion. The furnaces are being placed as fast as possible, and the whole work is being rushed with a degree of energy seldom seen.

Among the Foundries.

The Belleville Stove Works, of Belleville, Ill., are very busy.

J. Schneider & Sons, Terre Haute, Ind., are putting up a new foundry.

The Dayton, O., Malleable Iron Co. is about to build a foundry 132 x 200 feet.

The Union Iron Works, at Erie, Pa., have in contemplation a large foundry.

The Fulton Tool and Manufacturing Co., Canal Fulton, O., have added a foundry.

Ground has just been broken at Dayton, O., for the foundry of Marley, Craig & Co.

The Fremont Foundry and Machine Co., of Fremont, Neb., are adding to their foundry.

J. B. Boyle and others are establishing a $15,000 iron foundry and machine shop in Westminster, Md.

The Falls Rivet Co., Cuyahoga Falls, O., are putting in a new cupola with a capacity of 35 tons.

The St. Louis Sash Weight Co. are running full handed on sash weights and light machinery castings.

The Meadow Patent Pulley Co. of St. Louis are rushed on a large order for a Chicago firm, consisting chiefly of gymnasium supplies.

A stove and range plant will be erected at Memphis by the Schmalzried Stove and Range Company.

The foundry department of the Kansas City Wire and Iron Works was damaged $7,000 by fire recently; insurance, $4,000.

The C. H. Hutchinson Foundry Machine Co., Manchester, N. H., has been incorporated with $60,000 capital.

Orders at the St. Louis Iron and Machine Co. consist of Corliss engines and miscellaneous machinery.

Green's Car Wheel Works, St. Louis, are very busy on wood working machinery castings for local manufacturers.

The Kalamazoo Spring and Axle Works, of Kalamazoo, Mich., took off their first heat a couple of weeks ago.

The extensive shops of the N. Y. C. & H. R. R. R., at Depew, N. Y., are about ready for roofing. They will not have a foundry on the start, but no doubt it will soon follow.

Westminster, Pa., is anxious to have a foundry and machine shop located there, and its citizens express a willingness to take stock in such an industry.

Mr. Dennis McCarthy, chief book keeper of the Todd Pulley and Shafting Works, East St. Louis, reports the order book as "boiling over" with new ones.

The Eagle Pattern and Model Co., of St. Louis, are turning out patterns for plow clevises and a car equipment company, besides a variety of minor work.

The Missouri Furnace Co., of South St. Louis, have blown in their furnace after a cessation of several months, thus opening up a new market for local founders.

Hunlett & Kilpatrick, proprietors of the Standard Foundry, St. Louis, are rushed on general jobbing, together with the Hooker-Colville steam pump supply work.

The Cleveland Steel Casting Co. has been incorporated by N. P. Bowler, W. W. Balkwill, W. W. Kennedy, C. B. Herod and C. A. Parsons. Capital stock, $100,000.

The G. V. Brecht Butcher Supply Foundry Co., St. Louis, have built an extensive addition to their foundry and increased their capital stock from $50,000 to $150,000.

The Baltimore (Md.) Iron and Steel Casting Co. have recently erected a well equipped foundry, embracing a 100 x 50 feet cast house and a 100 x 40 annealing house.

The Marshall Foundry and Construction Co. are building an addition to their foundry on 28th street, Pittsburg. It is an iron-clad structure, 100 x 80 feet, with a truss roof.

The Eclipse Clutch Works, of Beloit, Wis., have just completed their new foundry. Mr. Knight, their foreman, was formerly with Carriage & Son, of Kalamazoo, Mich.

The McMurray & Judge Architectural Iron Works of St. Louis, Mo., are evidently doing a heavy business, from the fact that they are constantly advertising for molders and helpers.

The Dodge Mfg. Co., of Mishawaka, have one of the finest shops in the country. Mr. W. Dodge, the purchasing agent, is a very congenial gentleman, and is always ready to welcome visitors.

R. S. Newbold & Son, Norristown, Pa., are building a new foundry and stock house in connection with their present plant. The foundry will be 50 x 100 feet in size and the stock house 26 x 80 feet.

The Michigan Iron Works, Grand Rapids, Mich., has just completed the largest casting ever made there—the fly wheel for the new water works engine. It is 18 feet in diameter and weighs 17 tons.

The J. J. Vollrath Mfg. Co., of Sheboygan, Wis., is one of the largest hollow-ware concerns in the country. They have been adding to their plant until they now have one of the most complete of its kind in America.

The Ette & Henger Mfg. Co., of St. Louis, Mo., have made an L-shaped addition to their foundry, 60 x 132, also a new Colliau cupola. Other buildings are to be erected, consisting of mill room and office structures 140 x 80.

The Youngstown Car Co. moved into its splendid new foundry the first of the week, and the

first heat was taken Wednesday. The foundry is a decidedly modern one, large and commodious, and offering all conveniences.

The National Malleable Casting Co., of Chicago, Ill,, have purchased ten acres of land for $75,000, and will put up ten buildings at a cost of $120,000. The company's capital stock is $3,000,000. The company now owns what is known as the Chicago Malleable Iron Works.

The Penn Steel Castings and Machine Co., of Chester, Pa , is bringing to completion the improvements in the plant of the old Chester Foundry and Machine Co., which it now occupies. The iron foundry is already in operation. In the steel castings department two furnaces of 25 tons capacity each have been put up and two 30-ton electric traveling cranes.

The Walker Mfg. Co., Cleveland, O., contemplate electricity as a motive power for their four 30-ton and two 12-ton traveling cranes. At present they use rope transmission. Electricity is also contemplated as the best means to furnish light when the short days of winter set in or night work is rendered necessary in any department.

The Forest City Foundry and Mfg. Co., Cleveland, O., employ 175 men, and make a specialty of light grey iron castings, using only the best iron, suitable for the finest work. William Strangward, formerly with the Viaduct Foundry Co., is president and manager, while C. F. Stebbach, formerly with Palmer & Detmoy, is secretary-treasurer.

The Indianapolis Stove Company have a most complete plant, melting from 20 to 25 tons per day. Mr. G. Kimmick, who was with them for a number of years, is now with the Grunnell Stove Company, Grunnell, Ind. Mr. Meyers has taken his place very efficiently. Mr. George Bowles, who has been with them for the past fifteen years, is their foreman.

The Brown-Ketcham iron works at Indianapolis have just finished their new shop, and have now one of the most complete concerns of its kind in the country. They employ about sixty-five molders, melting from 25 to 30 tons of iron per day, and are doing a large amount of work for the World's Fair. Mr. Conners, their foreman, is a thorough mechanic.

The S. Obermayer Co., Cincinnati, Ohio, manufacturers of high grades of foundry facings and supplies, report business splendid; in fact they are so busy that they will be compelled to run their Cincinnati and Chicago plants day and night to supply the demands for their goods. They will also have their Philadelphia and Buffalo plants in full operation very shortly.

Bowler & Co., Cleveland, Ohio, commenced business in 1863 under the title of Bowler & Maher, changing in 1870 to Bowler, Maher & Brayton, and in 1870 assuming their present name. They employ two hundred men, make a specialty of chilled car, engine, truck, running and steel-tired wheels, besides street railway and all kinds of heavy machinery and architectural work.

The Bay City Iron Co., Bay City, Mich., are building an addition to their foundry 24 x 35 feet and putting in a 20-ton jib crane. This will make their new foundry 35 x 70 feet, with two cupolas 40 x 30 inches inside of lining, two core ovens—one 5 feet 6 inches x 6 feet 6 inches and 17 feet long and the other 8 x 8 feet and 11 feet long. They are at present making all the castings for Wheeler's ship yard.

The Michigan Foundry Company, of Battle Creek, Mich., have had a very good season—the best they have known for years. Messrs. Smiley and Turner make the castings for their "Advance" thresher. Mr. Henry Bell, who served his time there, and is one of the best in the country on that class of work, is their foreman. They melt from 17 to 20 tons per day and have done so for the past five months.

The National Malleable Castings Company is the title of the largest malleable casting concern in the country. They have foundries in Cleveland, Chicago, Indianapolis and Toledo; capital stock $3,000,000, and give employment to 3,500 hands. The parent enterprise of this now mammoth concern was the one in Cleveland which was established in 1868 and was at that time the first institution of its kind west of the Alleghenies.

Cleveland, O., has a new foundry enterprise to be known as Wagner, Williams & Co. They purpose manufacturing a line of shelf hardware and miscellaneous goods in iron and brass, and expect to be ready for forty or fifty molders by the middle of October. Joseph Featherstone, an Englishman, late of Syracuse, N. Y., will have charge of the foundry. The shop is a nice one, and equipments of the best. The flasks are being made in Syracuse.

The Bain Stove Works, of Charleston, Ill., burned out some six months ago, and have now rebuilt on the same plan as the Mansfield Stove Works, Mansfield, Ohio. Mr. G. W. Wilcox, their manager, and Mr. George Craig, their foreman, are old, experienced men in the business. W. E. Warren is a stove molder in their employ, and was for a number of years in the employ of the stove works at Sioux City. This is one of the best lighted shops the writer was ever in.

The Taylor & Bogis Foundry Co. was organized in 1865 by Harvey Taylor and H. F. Taylor under the title of H. Taylor & Son. In 1877 Harvey Taylor sold out his interest to H. F. Taylor and R. H. Bogis. Upon Mr. Taylor's death in 1883 Mr. Bogis purchased the interest of his deceased partner and organized the Taylor & Bogis Foundry Co. They make a specialty of light gray iron castings, and manufacture an extensive line of oil stoves which is well known all over the continent.

Books, Exchanges, Etc.

We are in receipt of a well printed and nicely illustrated catalogue of 200 pages, issued by the B. F. Sturtevant Company, of Boston, Mass., describing in detail their pressure blowers, blowers and engines combined, etc. It is also rendered especially interesting from having a series of tables showing the size of blower required for any given diameter of cupola and the amount of iron that can be melted when these proportions are observed, together with number of square inches of blast, cubic feet of air per minute, speed, ounces of blast, pressure, etc. As we are assured that these tables are reliable, we can commend them to any foundryman.

F. B. Stevens, of Detroit, Mich., dealer in foundry supplies, pig iron, etc., made up his mind some little time ago that to be in line he should have a catalogue illustrating his specialties. He evidently has given the subject considerable study, because the result is certainly the most artistic production in the way of catalogue we have ever seen. Printed in colors on the very best of paper, richly illustrated, reading matter unique and original (as his advertising matter always is), to say nothing of its being interesting in a way never hitherto attempted. THE FOUNDRY congratulates him, and believes that his work will be thoroughly appreciated by his customers. It ought to bring him some trade.

"The Practical Brass and Iron Founder's Guide," a treaties on brass founding, molding, the metals, their alloys, etc., by James Larkin, late conductor of the brass founding department in the Penn Works, Philadelphia. A new revised and greatly enlarged edition. Philadelphia: Henry Carey Baird & Co., publishers; price, $2.50; is the title of a work that has been before the foundry public for some years, but which now comes out in a revised and enlarged edition. It contains much of interest to the student of these subjects, and is especially valuable on account of the mixtures and the formulas given therein.

The Chicago Foundry Supply Co. are distributing among their customers an interesting 8-page circular, descriptive of a new product of which they are the sole manufacturers, and which it is claimed possesses wonderful properties for refining, cleaning and obtaining perfectly dense castings in smelting copper, brass, bronze, nickel, german silver, aluminum and alloys. As much trouble is frequently experienced by brass founders to secure perfectly solid castings, especially where old brass is melted to any extent, it seems that this ought to be a valuable article, considering the very low price at which it is sold.

Fire brick is something every foundryman is interested in, and there are but few who cannot call to mind some unpleasant experiences through the use of an inferior, cheap or unsuitable article. The Garden City Sand Company, of Chicago, have been making a specialty of that article in connection with their molding sand and foundry supply business, and have issued a very neat and complete little catalogue, in which the subject is dealt with in much detail and some interesting tables introduced whereby the number, kind and exact quantity of brick required to line up a cupola of any given size can be seen at a glance, together with much other information that every one should know who has to place dependence on this fire resisting article.

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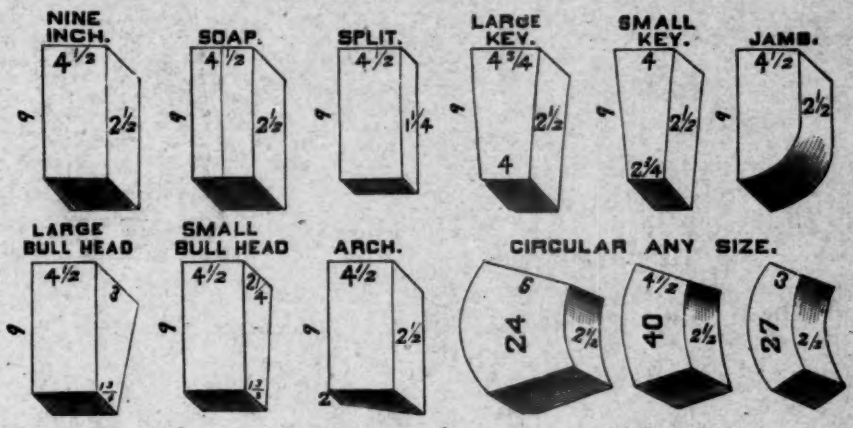

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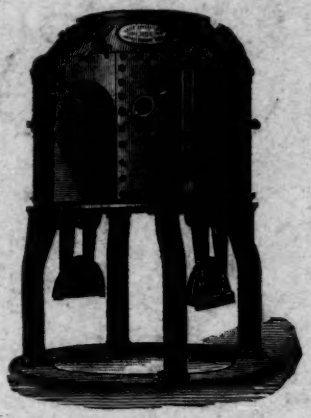

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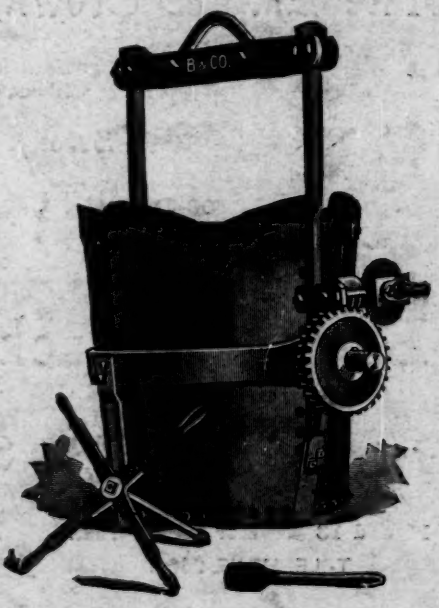

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